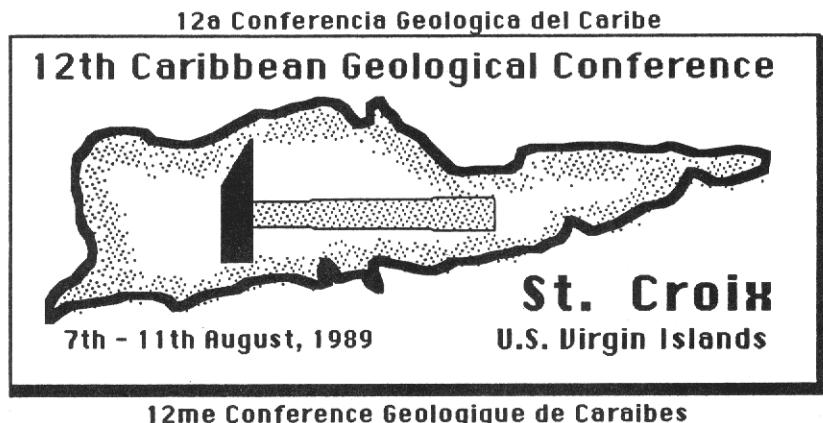


# **TRANSACTIONS OF THE 12TH CARIBBEAN GEOLOGICAL CONFERENCE**

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LATE HOLOCENE OSTRACODA IN AND AROUND LAKE ENRIQUILLO,  
DOMINICAN REPUBLIC

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**Abstract.**

Fifteen short cores (-35 cm) and one longer one (-115 cm) in Lake Enriquillo show ostracode faunas of very low diversity. The top 10-15 cm of 5 cores exhibits dominant Cyprideis salebrosa, suggesting low salinities. Bottom parts show dominant Cyprideis edentata, indicative of hypersalinity; it occurs throughout some cores. The middle, and sometimes upper, parts exhibit a fauna of Dolerocypris inopinata and Perissocytheridea cribrosa probably indicative of intermediate salinities, usually with Cyprideis similis. The surface sections around the lake show a more diverse fauna, from almost totally marine (with some brackish water species, e.g. Perissocytheridea exilis n. sp.) in the Holocene coral reef, to lacustrine in the upper part of the overlying sediments with Cyprideis salebrosa, Limnocythere sp. aff. L. ceriotuberosa, Cytheridella boldi, Cyclocypris sp. 1, Cypridopsis vidua, Strandesia pistrix, Darwinula stevensoni etc. This fauna is similar, but much more diverse than that of the bottom part of the longer core in the lake, and identical to that of a sample from Isla Cabritos. There is a transition from marine to lacustrine fauna with Cyprideis similis, C. mexicana, C. salebrosa and Peratocytheridea setipunctata. An attempt is made to correlate the surface sections on the basis of faunal characteristics, and to correlate the short sections of lake mud on the basis of dominance of Cyprideis species. However, no direct correlation is possible between the surface sections and the lake section.

**I. Geological setting.**

The Enriquillo Basin is part of an elongate depression, which separates the Massif de la Selle of Haiti and the Sierre de Bahoruco of the Dominican Republic from the main body of the island of Hispaniola. The depression is bordered on the north by the Sierre de Neiba, the Montagnes du Trou d'Eau and the Chaine des Mattheux. It is partially filled by two lakes, the Etang Saumâtre in Haiti and the Lago de Enriquillo in the Dominican Republic. The surface of the latter lies about 45 m below sea level and is dammed-off on its east side by deposits of the Rio Yaque del Sur and separated from the Etang Saumâtre on its west side by low hills in which the Jimani Formation is exposed. South of the Lake are low mountains composed mainly of rocks of the Las Salinas and Jimani Formations. To the north the foothills of the Sierre de Neiba are mainly formed by Paleogene and early Neogene limestones with some Plio-Pleistocene beds, tentatively correlated with the Arroyo Blanco Formation. The Enriquillo basin was flooded by the sea several times in the Miocene and Pliocene; afterward the deposited sediments were folded and faulted. The last invasion was accompanied by the growth of a fringing coral reef (text-fig. 1), the crest of which lies at about 5 m below present sea level (B.S.L.), which is believed to be the position of sea level about 5000 Y. B. P. After the separation from the sea by river deposits (mainly of the Rio Yaque del Sur), a decrease in salinity killed the reef, and lacustrine sediments were deposited on top of it. Later evaporation caused the lake level to drop to its present position and increase the salinity to about 49% (Condit & Ross, in Vaughan et al. 1921). The level of Lake Enriquillo was reported by Wells (1892) to be at sea level, Tippenhauer (1900) reported it at 34 m (B.S.L.) and Condit and Ross (1919) at 43 m (see Bold, 1975a, text-fig. 2). The level of the Etang Saumâtre over the same period was and is about 60 m higher.

**II. Introduction to present studies.**

In 1987 geologists of the University of Texas measured, described and sampled a number of sections of sediments overlying the subaerially exposed Holocene reef around Lake Enriquillo. These sections

were those of the Arroyo el Aculadero, "Big Bend", Cañada Honda, Cañada del Benito and part of a gully west of Villa Jaragua (Text-fig. 1: 2-7). At the same time they took fifteen short cores (25-35 cm) and one slightly longer one (115 cm) in the lake (Text-fig. 1). They also collected samples from sediment between coral heads within the reef itself in the Cañada Honda and Cañada del Benito sections, and in one case in the Cañada Honda from Quaternary sediments below the reef. Later, Barun Sen Gupta collected samples inside the reef in the Arroyo el Aculadero, and I added to the post-reef sections by completing the Villa Jaragua section and sampling the Canada de Charco Salido section on the south side of the lake, east of Arroyo el Aculadero. In the reef below the villa Jaragua section I found a large, silty-marly lens with a rich fauna of ostracodes. The age of the Holocene coral reef has been determined to lie roughly between 9000 and 4800 Y. B.P. (Mann et al., 1984, Taylor et al., 1985).

The lake cores were split lengthwise into 2 halves, one of which was stored for future reference. The other half was sampled at 5 cm intervals, washed and examined for microfauna. They contain a low diversity fauna of ostracodes and mostly very small, foraminifera: *Ammonia*, *Bolivina* and *Miliolids*. *Ammonia* is dominant in samples with *Cyprideis salebrosa* assemblage, *Miliolids* in the other assemblages. In one sample a few specimens of *Globorotalia crassaformis* and *G. tumida* were found. They represent late Pliocene or younger reworked material, which creates an additional problem as deep water deposits of this age are unknown in the vicinity of the lake. Of the 225 samples studied, 100 came from the lake cores, the rest from surface sections.

Types and figured specimens are deposited in the H.V. Howe collections, Museum of Geoscience, Louisiana State University, Baton Rouge, HVH nos. 10927-10957.

### III. Ostracodes in Recent and Subrecent sediments of Lake Enriquillo (Table 1)

These include: *Cyprideis edentata* Klie, *C. salebrosa* Bold, *C. similis* (Brady) *Dolerocypria inopinata* Klie. *Heterocypris?* sp. = Ostracode sp. B, Bold, 1975a, p. 616, pl. 58, fig. 4. *Limnocythere floridensis* Keyser. *Perissocytheridea cribrosa* (Klie). *Potamocypris* sp., Bold, pl. 59, fig. 11. *Cyprideis edentata* and *C. salebrosa* are mutually exclusive, but both occur with *Cyprideis similis*, *Dolerocypria inopinata* and *Perissocytheridea cribrosa*. *Heterocypris?* sp. and *Limnocythere floridensis* are only associated with *C. salebrosa*. There is also some negative correlation between abundances of *Dolerocypria inopinata* and *Cyprideis*

*edenata*; in fact, *D. inopinata* is more abundant in samples where *Cyprideis similis* is the dominant *Cyprideis* species and in some where only *C. similis* - *Dolerocypria* and *Perissocytheridea* are found. The *Cyprideis edentata* - *C. similis* - *Dolerocypria inopinata*- *Perissocytheridea cribrosa* assemblage is identical to that of the saline lagoons of Aruba, Bonaire and Curacao (Klie, 1939b) and indicative of hypersalinites of the order of 49% as reported by Condit and Ross from Lake Enriquillo (Vaughan et al., 1921, p. 191). *Perissocytheridea cribrosa* and *Dolerocypria inopinata* also occur in low salinity environment such as is found in the tops of cores 8, 9, 19 and 21, where they occur with *Cyprideis salebrosa* and *Limnocythere floridensis* or in the upper part of the sediment sections above the exposed reef, where they occur together with *Cytheridella boldi* Purper and several fresh water ostracodes in addition to the two species mentioned above. This assemblage may indicate oligohaline conditions. The hypersaline *Cyprideis edentata* assemblage is found in the bottom of most of the short cores, and sometimes also in the top part (See Table 2 and Text-fig. 2). The assemblage of dominant *Cyprideis similis* generally occurs in the middle part of the cores (and sometimes the upper part). In cores 8, 9, 19 and 21 it separates the *Cyprideis salebrosa* assemblage from the *C. edentata* assemblage, probably representing salinities intermediate between oligohaline and hypersaline. The low salinity environment of these 4 cores is attributed to upwelling fresh water in the deeper parts of the basin, possibly associated with the fault zone that crosses Lake Enriquillo from west to east just north of Isla Cabritos.

The fauna of the longer core is slightly anomalous in that *Cyprideis salebrosa* is dominant both in the top 10 cm and from 25 to 115 cm, separated by an interval in which *Cyprideis similis* is the dominant *Cyprideis* species. Therefore, the top 25 cm are similar to those in neighboring core 9. The possibility exists that the lower *C. salebrosa* assemblage could correlate with those at the tops of the subaerially exposed sections around the lake. However, given the total absence of the fresh water species that accompany this assemblage in those sections (especially *Cypridopsis* sp. 1) this appears not very likely.

Hydrobid gastropods and a species of bivalves are common in most cores. The gastropods are dominant in samples with *Cyprideis salebrosa* and in some with intermediate faunas, usually with *Cyprideis similis*. The bivalves are dominant in samples with *Cyprideis edentata* and in some of the intermediate faunas. In intermediate faunas they often occur together.

All samples have a very low diversity. The Cyprideis edentata assemblage never contains more than four species, the C. salebrosa assemblage not more than seven. The more common ostracodes are accompanied by complete or almost complete sets of molt stages; gastropods and bivalves include numerous young individuals of all sizes. Therefore post portem transport may be excluded. Bioturbation has disturbed some layers and individual samples may have a somewhat mixed fauna. Rare reworked ostracodes occur in several samples, all single valves with a more milky color, which are filled with slightly indurated sediment. Only in one case are they suspected to be derived from the exposed sections around the lake: interval 20-35 cm of the longer core with Limnocythere sp. aff. L. ceriotuberosa.

#### IV. Ostracodes in sediments overlying the Holocene reef around Lake Enriquillo (Tables 3-9).

They include:

Bairdia sp.

Bairdopilata cushmani (Tressler)

Cryptocandona sp.

Cyclocypris sp. 1, Bold, 1975a, p. 605, pl. 58, fig. 2a-d; Cyclocypris sp. 2, Bold, 1975a, p. 606, pl. 58, fig. 5a, b. Cyclocypris occurs mostly in mesohaline waters of very low alkalinity (Carbonel et al, 1988).

Cyprideis mexicana Sandberg, C. salebrosa Bold, C. similis (Brady), See VII.

Cypridopsis vidua (Müller), Cypridopsis sp.

Cytherella sp.

Cytheridella boldi Purper (See VII).

Cytherura sp.

Darwinula stevensoni (Brady and Robertson) (See, Sohn, 1987). Darwinula seems to prefer oligohaline (Keyser, 1975), clear, calm waters (Carbonel et al, 1988). Pl. 1, fig. 6.

Dolerocypria inopinata Klie (See VII).

Hemicypris reticulata Klie (See VII).

Heterocypris? sp. = Ostracode sp. B, Bold, 1975a, p. 616, pl. 58, fig. 4)

Jugosocythereis pannosa (Brady)

Limnocythere floridensis Keyser, L. sp.

aff. L. ceriotuberosa Delorme (Bold, 1975a, p. 613, pl. 59, fig. 9). See remarks to L. floridensis in section VII, Pl. 1, fig. 8.

Loxoconcha (Loxoconcha) levis Brady

Loxoconcha (Loxocorniculum)

dorsotuberculata (Brady), L. (L.) fischeri (Brady), L. (L.) tricornuta (Krutak).

Orionina bradyi Bold, O. fragilis Bold, O. serrulata (Brady)

Paracytheridea tschoppi Bold, P. sp.

Paracytheroma sp.

Paranesidea bradyi (Bold), P. bensonii (Teeter).

Peratocytheridea setipunctata (Brady). Pl. 2, fig. 6-8.

Perissocytheridea cibrosa (Klie), P. rugata Swain (=P. sp., Bold, 1975a, p.

612, pl. 62,, fig. 4a, b), P. subrugosa (Brady), P. sp. A.

Propontocypris sp. (See VII).

Potamocypris sp. (Bold, 1975a, pl. 59, fig. 11).

Puriana minuta Bold.

Strandesia pistrix Broodbakker, S. venezolana Broodbakker?, Strandesia sp. (See VII).

Xestoleberis antillea Bold, X. punctata Tressler, X. sp.

The most common species Cyprideis salebrosa, Perissocytheridea cibrosa, P. subrugosa, Cyclocypris sp.) are always accompanied by numerous molds, and they probably were living near the place of their thanatocoenosis.

The important difference with the fauna of the bottom part of the longer core in Lake Enriquillo is the continuous presence in the upper part of the subaerially exposed sections of Cyclocypris sp. 1, Cytheridella boldi, and other freshwater species, such as Strandesia pistrix and Darwinula stevensoni. Instead of Limnocythere floridensis a more spinosa form occurs in the surface sections (L. sp. aff. L. ceriotuberosa Delorme). The marine taxa, such as Paranesidea, Propontocypris, Orionina, Jugosocythereis, and Loxoconcha (Loxocorniculum), are almost totally confined to the basal strata, immediately overlying the reef. Their higher occurrences probably represent reworked reefal material; there are also layers of reworked Acropora cervicornis.

Correlation among the seven sections of post-reef sediments is based on the occurrence of 1) horizons of razor clams (Tagelus plebius) in life position. 2) the presence of hydrobid gastropods, with Cyprideis salebrosa and with or without the presence of Cytheridella boldi; 3) the temporary disappearance of Cyprideis mexicana, C. similis and Peratocytheridea setipunctata.

This level of disappearance is found at a somewhat varying distance (40-150 cm) below the upper Tagelus horizon, but is not observed in the Villa Jaragua section (see below). An upper Cytheridella boldi horizon occurs some distance (25-100 cm) above the Tagelus horizon (Text-fig. 1, sections 1-3, Tables 3-5). In the "Big Bend" section a lower Tagelus horizon is found about 150 cm below the upper one. In the Cañada del Benito section (Table 8) two Cytheridella boldi horizons occur, the upper one about 70 cm above the Tagelus horizon, the lower one about the same distance below it. The two Cañada Honda sections show (Tables 6, 7,) show a single Cytheridella boldi horizon just above the single Tagelus horizon. Therefore it seems almost certain, that both these horizons represent the lower ones, and that the Tagelus horizon in the Cañada del Benito is

the upper one, which was not reached in the short Cañada Honda sections.

In the Villa Jaragua section (Table 8) two Tagelus horizons and two Cytheridella boldi horizons occur. Both are found just above layers of reworked A. cervicornis. It is not clear if the lower one represents the C. boldi horizon of the Cañada Honda and Cañada del Benito sections, and the upper one the apparently continuous horizon in the top of the more westerly sections, or if there may be three different occurrences of Cytheridella boldi. C. boldi horizons represent a drop in salinity and the Tagelus horizons a slight increase in salinity. As marine influences would come from the east the presence of two Tagelus horizons there instead of one as in the west, does not seem illogical.

The level of temporary disappearance of Cyprideis mexicana, C. similis and Peratocytheridea setipunctata occurs below the upper Tagelus horizon and just above the top of the lower one. This disappearance is probably related to a lowering of the salinity and a possible increase in salinity may be indicated by the re-appearance of (some of) these species near the top in the Arroyo Aculadero section and in the upper Tagelus horizon in other sections. The distribution of Perissocytheridea subrugosa and P. sp. A, is similar to that of the above named species, but in the Villa Jaragua section the level of temporary disappearance is not observed, and Perissocytheridea sp. A is confined to the upper part of the section and P. subrugosa to the lower part. It should be emphasized, that the Villa Jaragua section is a composite one. The lower part was surveyed by Glenn and Maddox, the upper part, at a slightly different location, by me. Therefore although Table 9 shows a logical succession, it should be treated with some caution.

A limestone on Isla Cabritos (Text-fig. 1) sampled by J. W. Hunter (Bold, 1975a, H 10287) contains Cyclocypris sp. 1, Cyprideis salebrosa, Limnocythere floridensis and Cytheridella boldi, and is almost identical in fauna to the upper Cytheridella boldi horizon in the post reef sections.

In all sections Cyprideis salebrosa is ubiquitous. The relative abundance of the smooth, punctate and nodose forms is recorded in the tables, and appear to indicate an increased salt concentration between the two Tagelus horizons, but no firm conclusions have been reached about the environmental significance. The faunas in the surface sections are more diverse than corresponding assemblages in the cores (always more than 10 species in individual samples).

#### V. Ostracode fauna of Holocene reef sediments around Lake Enriquillo (Tables 10-12).

They include: Bairdia laevicula Edwards, B. sp.  
Bairdopspilata cushmani (Tressler)  
Basslerites minutus Bold  
Campylocythere sp., Bold, 1975a, p. 615, pl. 59, fig. 5a, b  
Candonia sp.  
Caribecandonia sp.  
Carilella yoni (Puri)  
Cativella navis Coryell and Fields  
Coquimba sp.  
Cyprideis mexicana Sandberg, C. portusprospectuensis Bold, C. salebrosa Bold, C. similis (Brady)  
Cytherella harpago Kornicker, C. pandora Kornicker, C. polita Brady, C. sp. aff. C. pulchra Brady  
Cytherelloidea sp. aff. C. leonensis Howe  
Cytheridella boldi Purper  
Cytherura sp.  
Heterocypris? sp.  
Jugosocythereis pannosa (Brady)  
Loxoconcha (Loxoconcha) levis Brady  
Loxoconcha (Loxocorniculum) fischeri (Brady), L. (L.) tricornuta (Krutak)  
Occultocythereis angusta Bold  
Orionina bradyi Bold, O. serrulata (Brady)  
Paracytheridea calcitrappa Bold, P. tschoppi Bold  
Paradoxostoma sp.  
Paranesidea bradyi (Bold)  
Pellucistoma sp. aff. P. howei Coryell and Fields  
Peratocytheridea setipunctata (Brady)  
Perissocytheridea cribrosa (Klie), P. exilis n. sp., P. n. sp. (rew.), P. plauta Forester, P. subrugosa ((Brady), P. sp.  
Propontocypris sp. (See VII)  
Semicytherura sp.  
Triangulocypris keiji (Bold)  
Tribelina rugosa Allison and Holden  
Xestoleberis antillea Bold, X. punctata Tressler, X. sp.

The fauna comes from marly and silty pockets within the reef and from a large marly-silty lens inside the reef in the Villa Jaragua section (species marked with an asterisk) This fauna is always nearly totally marine with a small admixture of brackish water species and a few occurrences of rare fresh water species, obviously washed into the reef.

Jugosocythereis pannosa is the dominant species in nearly all samples. Typical Caribbean reef forms (e.g. Paranesidea, Propontocypris, Tribelina, etc.) are rare or absent (compare Bold, 1988b). However, some modern ubiquitous forms (e.g. Morkhovenia inconspicua, Neomonoceratina mediterranea) may have been introduced in the Caribbean after the closing of the Enriquillo Basin. The diversity of the faunas is less than what might be expected in modern Caribbean coral reefs; compare the Alacran (Bold, 1988b) or Belize reefs (Teeter, 1975).

This somewhat impoverished reef fauna may be the result of slow colonization of the Enriquillo Basin when the sea invaded it for the last time some 10,000 years ago. This could also be a possible explanation for the absence of typical Caribbean reef corals (*Acropora palmata*, *Meandrina* and *Diploporal* as noted by Mann et al (1984).

The fauna of the sediments immediately underlying the reef in the Cañada Honda (Table 11) is similar to the reef fauna with *Jugosocythereis pannosa* dominant, but lacking typical reef forms. The age of these sediments was determined as 9760 ± 110 Y.B.P. (Taylor et al, 1985). In other instances the reef lies unconformably on older (Pliocene or Pleistocene) sediments.

#### VI. CONCLUSIONS.

The last invasion of the sea into the Enriquillo Basin took place about 10,000 years ago and reef growth around the rim of the depression continued for about 5000 years. About 5700 Y.B.P., alluvial deposits of the Rio Yaque del Sur cut-off the supply of marine water, lagoonal conditions began and brackish water environment gradually changed to lacustrine. There were at least two periods of temporarily increased salinity during which *Tagelus plebius* became prominent, the last one determined as taking place at 2820 + 40 Y.B.P. (Taylor et al, 1985). Lacustrine conditions continued for at least the time needed to deposit one more meter of sediment above this horizon. The hypersaline conditions in at least the upper 35 cm of the lake deposits are a very recent event. The distribution of ostracodes suggests that this late development followed the neutral saline path of the evaporation cycle (see Carbonel et al, 1988). Local lower salinity conditions may be caused by upwelling fresh water. More precise timing of the beginning of hypersaline conditions, and possible correlation of lake sediments with the subaerially exposed sections around the lake can only be accomplished by collecting some longer cores in the lake.

#### VII. Systematics.

Only some of the fresh- and brackish water species and one marine species are treated here. For some others references have been given in the lists of species of parts III-V. Very rare species are not considered here.

CYPRIDACEA BAIRD, 1859

CYPRIDIDAE Baird, 1850

CYPRIDINAE Baird, 1850

Genus DOLEROCYPRIA Kaufmann, 1900

*Dolerocypria inopinata* Klie

Pl. 1, fig. 9, Pl. 2, fig. 9-10

*Dolerocypria inopinata* Klie, 1939b, p. 6, figs. 1-8; Teeter, 1975, p. 426, figs. 5c, 6g; Sanger and Teeter, 1982, figs. 2f-j.

**Remarks:** Teeter's identification suggests that this species can tolerate extreme differences in salinity. This is confirmed by its presence in the Enriquillo Lake with both *Cyprideis edentata* and *Cyprideis salebrosa* and with distinct fresh water species in the subaerially exposed sections above the reef. According to Keyser (1975) this species is systematically closer to *Parapontoparta* than to *Dolerocypria*.

**Distribution:** Recent of Aruba, Bonaire, Curacao, Belize, Bahamas and Hispaniola, subrecent Hispaniola.

Genus HEMICYPRIS Sars, 1903

*Hemicypris reticulata* (Klie)

*Heterocypris reticulata* Klie, 1930, p. 228, figs. 10-13.

*Hemicypris reticulata* (Klie), Bate, 1970, p. 292; Broodbakker, 1983a, p. 143, figs. 5A-F, 6A-H, 9C.

**Remarks:** *H. reticulata* has been reported from temporary and semipermanent small and large pools and basins, mostly without vegetation in muddy sediments of waterdepth 0.1-2 m, chlorinity 10-725 mg Cl/l.

**Distribution:** Paraguay, Aruba, Bonaire, Curacao, St. Croix, Puerto Rico (Recent); Hispaniola (subrecent).

Genus STRANDESIA Stuhlman, 1888

*Strandesia pistrix* Broodbakker

Pl. 1, fig. 7

*Strandesia pistrix* Broodbakker, 1983c, p. 438, figs. 10A-F, 11A-D.

**Remarks:** *S. pistrix* has only been reported from a large, open karst spring with low chlorinity and much vegetation. Although it is oculate, Broodbakker supposes it to be epigean. Its fossil occurrence in the Dominican Republic, however, suggests that it belongs to the lacustrine fauna (with *Cytheridella* and *Limnocythere*).

**Distribution:** Hispaniola (Recent and subrecent).

*Strandesia venezolana* Broodbakker?

*Strandesia venezolana* Broodbakker, 1983c, p. 351, figs. 12A-L.

**Remarks:** Only fragments of this large species have been found and determination therefore is questionable. It has been reported from a karst spring, a "limnocrene" well and river sediments of varying chlorinity.

**Distribution:** Venezuela (Recent),? Hispaniola (subrecent)

*Candoninae* Daday, 1900

Genus CARIBECANDONA Broodbakker

*Caribecandona ansa* Broodbakker, 1983b, p. 314, figs. 7E-F, 8H-M, 10H, 11A, C.

**Remarks:** *C. ansa* may be epigean and interstitial. It was reported from a water well with no other ostracodes present.

**Distribution:** Hispaniola (Recent and subrecent).

PONTOCYPRIDIDAE Müller, 1894

Genus PROPONTOCYPRIS Sylvester-Bradley, 1947

*Propontocyparis* sp.

Pl. 1, fig. 1-5

Diagnosis: Left valve elongate trapezoid in side view, right valve elongate subtriangular; greatest height at 3/8 of the length from the anterior, postdorsal angulation at 1/5 of the length from the posterior.

Dimensions: Left valve: L: 0.64; H: 0.33; Right valve: L: 0.63; H: 0.32.

Affinities: Similar to the *P. dispar* (Müller) complex (Maddocks, 1969, p. 15), but slenderer in side view and with a distinct, though weak, posterodorsal angulation.

Distribution: Interreef sediments and basal sediments overlying the reef in the "Big Bend" section.

CYTHERACEA Ulrich and Bassler, 1923  
CYTHERIDEIDIDAE Sylvester-Bradley and  
Harding, 1953

Genus CYPRIDEIS Jones, 1857  
*Cyprideis edentata* Klie  
Pl. 2, fig. 3-5

*Cyprideis edentata* Klie, 1939b, p. 11-13,  
figs. 9-15; Sandberg, 1964, p. 113-  
115, pl. 6, fig. 1-8, pl. 16, fig. 8,  
pl. 21, fig. 6a-d, pl. 22, fig. 6;  
Bold, 1976, p. 23; Maddocks and  
Iliffe, 1986, p. 69.

Remarks: Klie (1939) reports it in  
chlorinities of 26-80 g/l.

Distribution: Salinas of Aruba, Bonaire  
and Curacao, Bermuda caves, Dominican  
Republic (Recent).

*Cyprideis mexicana* Sandberg  
Pl. 1, Fig. 10-11

*Cyprideis mexicana* Sandberg, 1964, p. 125,  
pl. 11, fig. 11-14, pl. 12, fig. 1-5,  
pl. 17, fig. 1, pl. 20, fig. 1, 2, pl.  
22, figs. 2, 4a, b.

*Cyprideis bensoni* Sandberg, King and  
Kornicker, 1970, pl. 12, figs. 7, 10

*Cyprideis* sp. King and Kornicker, 1970, pl.  
13, figs. 7, 8.

*Cyprideis* sp. aff. *C. mexicana* Sandberg,  
Machain, 1986, p. 138; 1988, p. 102, pl. 1,  
fig. 9.

Distribution: Late Pliocene - Recent,  
Mexico; Upper Las Salinas and Jimani  
Formations and Subrecent deposits,  
Enriquillo Basin, Dominican Republic.

*Cyprideis salebrosa* Bold.  
Pl. 2, fig. 1. 2

*Cyprideis salebrosa* Bold, 1963, p. 377, p.  
7, fig. 9a-d, p. 11, fig. 1a-c; 1976,  
p. 22 (with synonymy); Kusnetsov et  
al, 1977, p. 55; Bold, 1981, p. 60, p.  
2, fig. 5a, b, table 10; Stout, 1981,  
p. 898, text-fig. 1; Bold, 1983, p.  
413, figs. 8, 9; Cronin, 1986, pl. 6,  
fig. 4, Machain, 1986, p. 101, pl. 1,  
fig. 8; Diaz-Brito, Maura and Würdig,  
1988, pl. 1, fig. 14 (Not fig. 15);  
Bold, 1988, p. 58.

Distribution: Santiago Formation (Cuba),  
Upper Las Cahobas and Morne Delmas  
formations (Haiti), Jimani, Upper Las  
Salinas and Arroyo Blanco formations, and  
recent and subrecent deposits (Dominican  
Republic), Lajas beds (Puerto Rico),  
Talparo Formation (Trinidad), Encanto,  
Concepción and Agueguexquite formations

(Mexico). Late? Pliocene - Recent. Known  
in recent deposits from Kansas to  
Argentina.

*Cyprideis similis* (Brady)  
*Cytheridea similis* Brady, 1869, p. 147, pl.  
14, fig. 19, 20.

*Cyprideis similis* (Brady), Bold, 1976, p.  
22 (with synonymy); Sánchez, 1977,  
table 2; Bold, 1988, p. 58.

Remarks: Klie (1939) reports *Cyprideis*  
*inermis* (= *C. similis*) in chlorinities  
of 20-44 g/l.

Distribution: Unnamed beds in Pozo  
Catalina no. 5 (6-160 m) (Cuba); Upper  
Morne Delmas and Las Cahobas formations  
(Haiti). Upper Las Salinas. Jimani and  
Arroyo Blanco formations and recent and  
subrecent deposits (Dominican Republic);  
Talparo formation (Trinidad), Cumaná and  
Guiria formation (Venezuela). Late  
Pliocene to Recent. Known from recent  
deposits in the Gulf of Gascogne, Magellan  
Straits, Mauritius, Java, Brazil (Klie,  
1939a), and throughout the Caribbean.

Genus LIMNOCYTHERIDAE Klie, 1938  
*Limnocythere floridensis* Keyser

*Limnocythere santipatricii* Brady and  
Robertson, Swain, 1955, p. 613, pl.  
60, figs. 1a-f, text-figs. 32a, 38.4;  
Swain, 1967, p. 90, figs. 47b, pl. 4,  
figs. 5a-c; Engel and Swain, 1967, p.  
413, pl. 2, figs. 30a-c; King and  
Kornicker, 1970, p. 39, pl. 8, figs.  
1a, b, pl. 18, figs. 9, 10, pl. 19,  
figs. 1, 2; Keyser, 1975, p. 490,  
text-fig. 3.

*Limnocythere* cf. *santipatricii* Brady and  
Robertson, McKenzie and Swain, 1967,  
p. 298, pl. 29, fig. 9.

*Limnocythere* sp., King and Kornicker, 1970,  
p. 40, pl. 8, figs. 2a, b, pl. 19, figs. 3-  
6.

*Limnocythere* cf. *friabilis* Benson and  
MacDonald, Bold, 1975a, p. 612, pl. 59,  
fig. 10.

*Limnocythere floridensis* Keyser, 1975, p.  
259, pl. 20, figs. 5-11, test-fig. 3;  
1976, p. 60, pl. 2, figs. 3-10, text-  
fig. 24; 1977, p. 208, text-figs. 1-5;  
Garbett and Maddocks, 1979, p. 863,  
pl. 1, figs. 5-8; Sanger and Teeter,  
1982, figs. 1a, b; Cronin, 1986, pl.  
1, figs. 5, 6.

*Limnocythere* sp., Kontrovitz, 1978, p. 156,  
pl. 5, fig. 3.

Distribution: Quaternary (southern U.S.,  
Cuba, Dominican Republic).

Remarks: *Limnocythere floridensis* has been  
reported to tolerate salinities up to 13‰.  
*Limnocythere* sp. aff. *L. ceriotuberosa*  
Delorme (Bold, 1975, p. 613, pl. 59, fig.  
9) is believed to be a variant of *L.*  
*floridensis*, differing in the development  
of two spines, one ventral and one dorsal,  
just behind the depressed muscle scar area  
(Pl. 1, fig. 8). The development of these  
spines is quite variable and in some  
specimens of *L. floridensis* a weak ventral  
spine is present. However, in the present  
study, the distribution of the two forms is  
quite different. Only a few specimens of  
real *L. floridensis* have been found in the  
sediments overlying the reef, whereas the  
spinose form is absent in the lake cores.

Therefore the two species have been kept separate until more is known about the influence of the environment on the development of the spines. One probably redeposited specimen of L sp. aff. L ceriotuberosa was found at 30-35 cm depth in the longer core. In the interval 20-35 cm many reworked specimens of Cyprideis salebrosa, Dolerocypris inopinata and Perissocytheridea cribrosa occur.

Genus CYTHERIDELLA Daday, 1905

Cytheridella boldi Purper

Metacypris? sp., Bold, 1958, p. 74, text-figs a-f.

Cytheridella sp., Pinto and Sanguinetti, 1962, p. 32.

Cytheridella boldi Purper, 1974, p. 654, pl. 10, figs. 1-4; Bold, 1986, p. 154, pl. 2, figs. 9, 10.

Cytheridella ilosvayi Daday?, Bold, 1975a, p. 613, pl. 58, figs. 1a-g, pl. 6, figs. 3a, b.

Distribution: Morne Delmas Formation (upper part) (Haiti), Las Salinas Formation?, Jimani Formation (Dominican Republic), Talparo Formation (Trinidad), Siguire Formation (Venezuela) (Pliocene Pleistocene), Subrecent (Dominican Republic), Recent (Venezuela, Trinidad).

CYTHERIDAE Baird, 1850

PERISSOCYTHERIDEINAE Bold, 1963

Genus PERISSOCYTHERIDEA Stephenson, Perissocytheridea cribrosa (Klie)

Pl. 3, fig 1-4

Leptocythere cribrosa Klie, 1933, p. 383, figs. 22-25 (Not Cythere cribrosa Brady, Grosskey and Robertson, 1874, place in Leptocythere by Herrig, 1977, p. 1256); Klie, 1939a, p. 16.

Ilyocythere cribrosa (Klie), Klie, 1939b, p. 370.

Perissocytheridea bicelliforma Swain, 1955, p. 621, pl. 61, figs. 3a, b, pl. 64, fig. 4; Bold, 1958a, table 1, 3; Morales, 1966, p. 36, pl. 3, figs. 1a-c; Swain and Gilby, 1967, p. 323, pl. 31, figs. 4a, b, text-fig. 11c; Krutak, 1971, p. 17, pl. 3, figs. 3a, b; Bold, 1972, table 2; Garbett and Maddocks, 1979, p. 893, pl. 8, figs. 7-10, text-fig. 41; Bold, 1981, p. 22, table 5; Sanger and Teeter, 1982, figs. 1 g, h; Crotty and Teeter, 1984, table 2; Teeter, 1987, p. 138; Teeter et al, 1987, table 1; Machain, 1986, p. 139; 1988, p. 108, pl. 2, fig. 5.

Perissocytheridea bicelliforma Swain?, Bold, 1963, p. 380, pl. 4, figs. 1a-d; pl. 12, fig. 11; 1964, table 2; 1966, table 1, 2; 1971, pl. 1, figs. 8a-d; 1975a, p. 609, table 2, 3, 5-8.

Perissocytheridea cf. bicelliforma Swain, Krutak, 1982, p. 270, pl. 6, figs. 4-9.

Perissocytheridea sp. aff. P. bicelliforma Swain, Bold, 1968, p. 29; Cronin, 1986, pl. 5, fig. 5.

Perissocytheridea sp. cf. P. matsoni (Stephenson), Bold, 1969, p. 121, pl. 1, figs. 10a-d.

Perissocytheridea matsoni (Stephenson), Bold, 1975a, table 1.

Perissocytheridea sp., Bold, 1971b, table 6.

Perissocytheridea cribrosa (Klie), Bold, 1972a, table 3; table 3; Keyser, 1976, p. 55, pl. 1, figs. 8-10; 1977, p. 52, pl. 1, figs. 8-12, text-fig. 4.

Not Perissocytheridea bicelliforma Swain?, Hulings and Puri, 1964, fig. 16; Keyser, 1975, p. 490, fig. 3.

Remarks: This species has been reported from very varying salinities: 1-20‰ (Swain, 1958), 5-48‰ (Keyser, 1975), 26-80‰ (Klie, 1939).

Distribution: Recent Trinidad, Venezuela, Aruba, Bonaire, Curacao, Costa Rica, Mexico, U.S. Gulf Coast, Florida, Cuba, Hispaniola, St. Croix, St. Martin; Upper Las Cahobas and Morne Delmas formations (Haiti), Angostura, Las Salinas and Jimani Formations (Dominican Republic), Lajas beds (Puerto Rico), Springvale and Talparo formations (Trinidad), Cubagua and Cumaná formations (Venezuela), unnamed Pleistocene beds, Goajira (Colombia), Concepción and Agueguexquite formations (Mexico). Pliocene - Recent.

Perissocytheridea exilis n. sp.  
Pl. 4, fig. 1-10

Name: exilis (L) - slender, thin.

Holotype: HVH no. 10946, right valve female, pl. 4, fig. 1.

Paratypes: HVH nos. 10947 - 10953; pl. 4, figs. 2, 4-8, 10.

Type locality: BSG 88/66, Arroyo El Aculadero, Enriquillo Basin, Dominican Republic.

Stratigraphic horizon: Holocene coral reef.

Diagnosis: A small, rather heavily reticulate species of Perissocytheridea.

Description: Female carapace small, elongate subovate, highest at 1/4 of the length from the anterior extremity, somewhat pointed subposteroventrally.

Anterior end slightly obliquely rounded, dorsal margin straight, slightly obscured in posterior half by the swollen posterodorsal portion of the valve, ventral margin gently convex, curving upward to the subventral posterior angulation. Dorsal part of posterior margin short and straight. Surface regularly reticulate with mostly hexagonal fossae, which are about the same size throughout, and rather coarse for such a small species. There is a median sulcus into which bend the more or less longitudinal rows of fossae of the posterodorsal swelling. Greatest width subventrally at 7/20 of the length from the posterior 1/4 of the carapace. Male, very similar in shape to the female, but slightly slenderer; the anterior cardinal angle is slightly elevated and rounded, giving a weak sinuation to the anterior part of the dorsal margin; the median sulcus is more distinct than in the female and the greatest width is situated at medium height instead of subventrally.

Dimensions: Female, left valve: L: 0.47; H: 0.27; W: 0.15; right valve: L: 0.46; H: 0.26; W: 0.14.

Male: Left valve: L: 0.48; H: 0.25; W: 0.14; Right valve: L: 0.47; H: 0.24; W: 0.13.

Remarks: This species is very similar to

Perissocytheridea pumila Bold, but differs by the absence of a median ridge and a more pronounced median sulcus, especially in the male. It is also slightly larger. P. pumila has been encountered in the La Cruz and Santiago formations of eastern Cuba and in the Cibao basin of the Dominican Republic. (Upper Miocene and Pliocene). Distribution: Holocene reef around Lake Enriquillo and pre-reef sediments in the Cavellina section (? Pleistocene).

Perissocytheridea sp. A.  
Pl. 3, Fig. 5-9, Pl. 4, fig. 11, 12.  
Perissocytheridea sp. A, Bold, 1975a, p. 611, pl. 62, figs. 3a-d.

Remarks: This species consistently occurs with P. cribrosa and the development of its ventral node varies. It is believed to be a variant of P. cribrosa, with the ventral node developing under conditions of environmental stress. It appears that this form occurs in brackish water deposits of moderately high salinity, however, it is not found in the lake sediments.

Distribution: Lower part of post-reef sections. Generally occurring together with Cyprideis mexicana, C. similis and Peratocytheridea setipunctata, often common in the Tagelus horizons. Las Salinas and Jimani formations (Enriquillo Basin, Dominican Republic).

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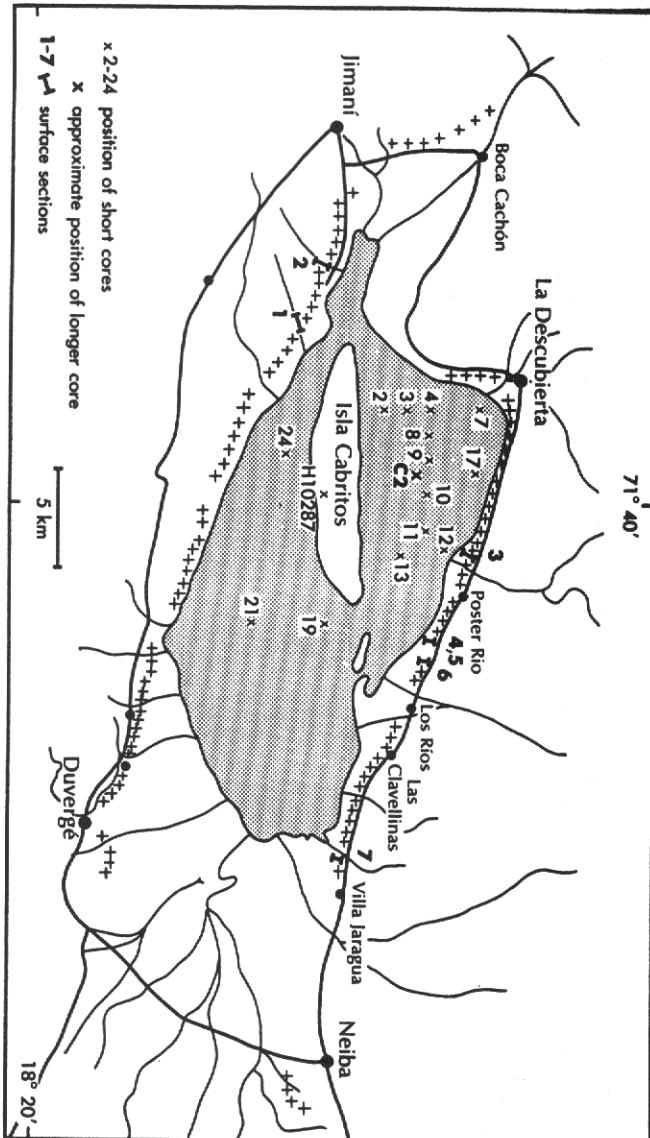
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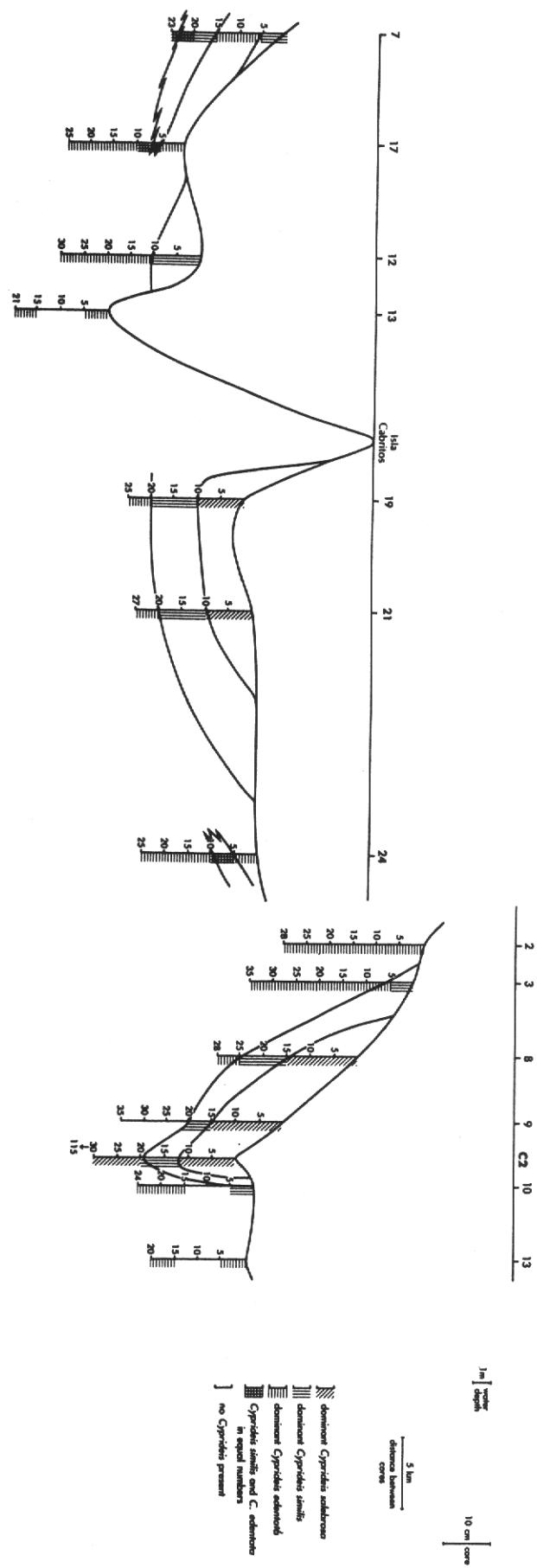
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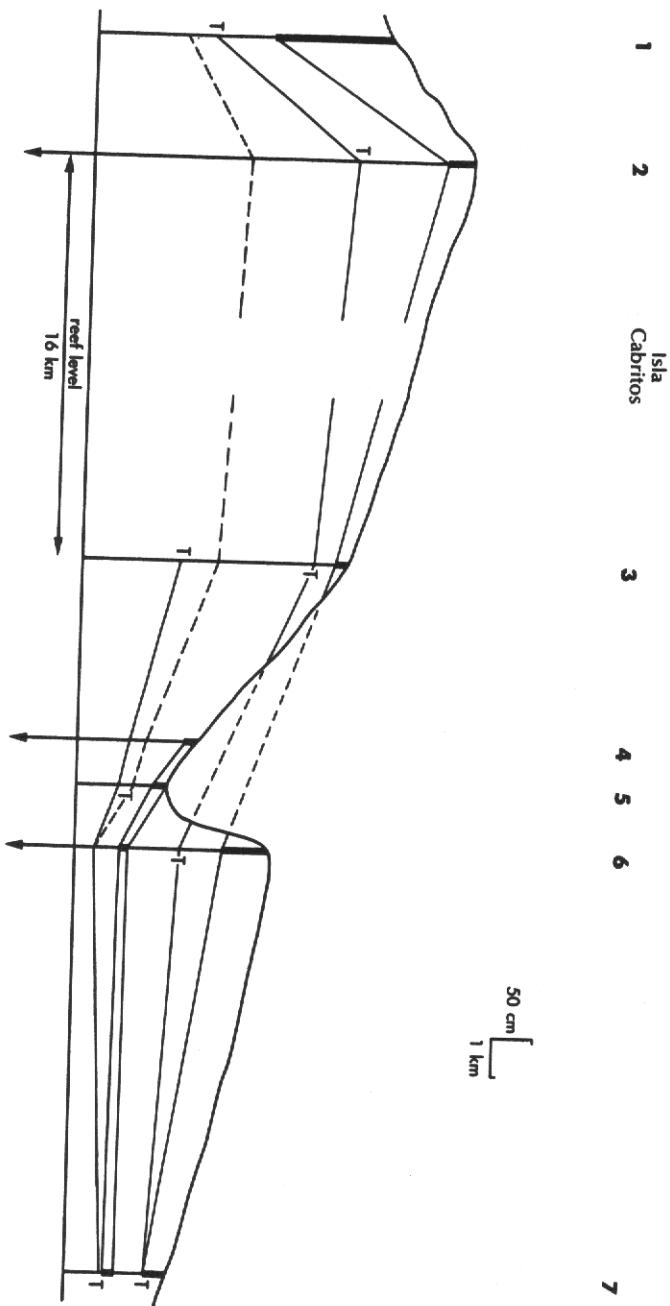


Text-fig. 1: Location of lake cores and surface section in and around Lake Enriquillo.

x 2-24 lake cores; C2: slightly longer core, I 1-7: surface sections: 1 Cañada de Charco Salido; 2 Arroyo el Aculadero (Table 4), 3 "Big Bend" (Table 5); 4 Cañada Honda (Table 6); 5 Cañada Honda (Table 7); 6 Cañada del Benito (Table 8); Villa Jaragua section (Table 9). xxx: position of Holocene reef.



Text-fig. 2: Distribution of ostracode zones in Lake Enriquillo mud. Note the difference between the horizontal scale and two vertical scales (water depths and core lengths).



Text-fig. 3: Correlation of subaerially exposed sections above the Holocene reef.

I    Cytheridella boldi horizons  
T    Tagelus plebius horizons  
-----temporary disappearance of Cyprideis mexicana. C. similis and Peratocytheridea setipunctata.

	conglomerate
	gastropods
	gastropods (hydrobids)
	<i>Tagelus</i> in life position
	bivalves
	shell hash
	reworked <i>Acropora cervicornis</i>
	clay and silt
	burrows
	coral heads
	<i>Acropora cervicornis</i> in life position
	platy corals
	oysters

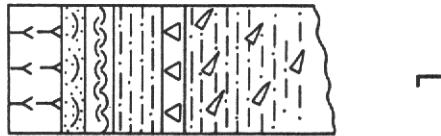
**Text-fig. 4:** Legend for the lithological columns of Tables 3-12.

Table 1: Distribution of ostracodes in two short cores of Lake Enriquillo mud.

core	Depth	0-5	5-10	10-15	15-20	20-25	25-30	30-35
no.	in m.	cm	cm	cm	cm	cm	cm	cm
2	5	ED	ED>SM	ED	ED	ED	ED	ED
3	5	SM>ED	ED>SM	ED>SM	-	ED>SM	ED	ED
4	5.5	SM..ED						
7	5	SM>ED	ED>SM	ED>SM	SM>ED	SM=ED		
8	8.5	SA	SA	SA>SM	SM>ED	SM>ED	ED>SM	
9	12.5	SA	SM>SA	SM>SA	SM	-	-	-
10	14	SM	-		ED	ED	ED	
11	13	SM	SM	-	ED	-	-	
12	9	SM	SM	ED>SM	ED	ED		ED
13	14.5	ED	-	-	ED			
15	14.5	SM>ED	-	ED	ED	ED		
17	10.5	ED	SM=ED	ED	ED	ED		
19	7	SA	SA	SM	SM	ED>SM		
21	6.5	SA>SM	SA=SM	SM>ED	SM>ED		ED>SM	
24	6	ED>SM	SM=ED	ED>SM	ED	ED		
C2	15	SA>ED	SA	SA=SM	SM	SM	SA>SM	SA
	35-40	40-45	45-50	50-55	55-60	60-65	65-70	
	SA	SA	SA	SA	SA	SA	SA	
	70-75	75-80	80-85	85-90	90-95	95-100	10-105	
	SA	SA	SA	SA	SA	SA	SA	
	105-	110-						
	110	115						
	SA	SA						

Table 2: Dominant species of Cyprideis in cores of Lago de Enriquillo mud.

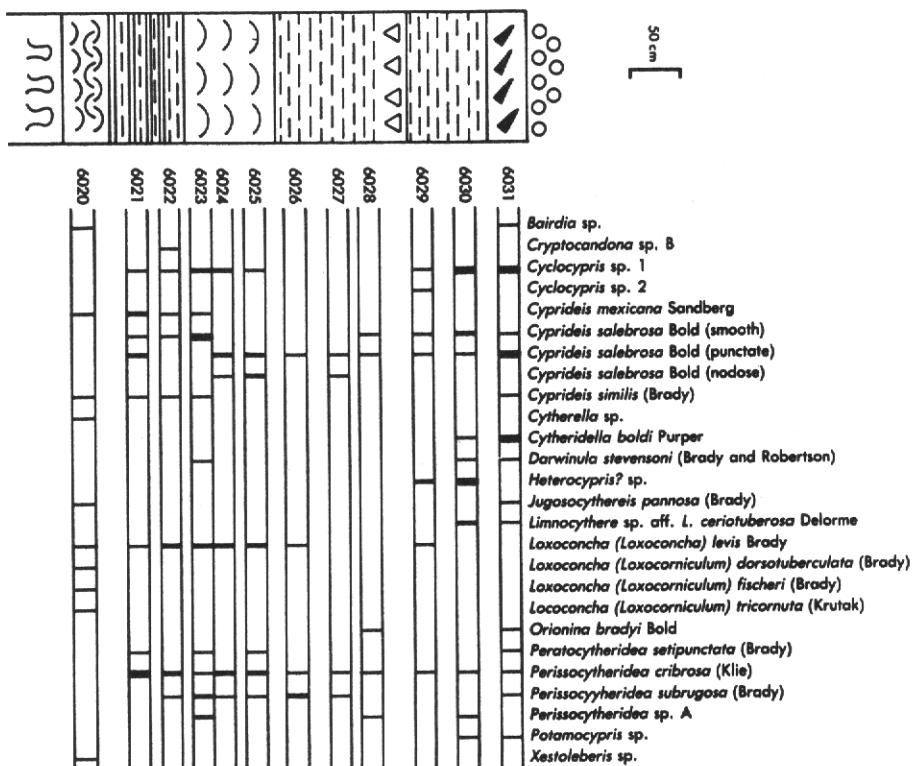
SA= C. salebrosa; SM= C. similis; ED= C. edentata;  
- no Cyprideis present.



[5 cm]

oo	oo	oo	Candona sp.
oo	oo	oo	Cyclocypris sp. 1
oo	oo	oo	Cyprideis mexicana Sandberg
oo	oo	oo	Cyprideis salebrosa Bold
oo	oo	oo	Cyprideis similis (Brady)
oo	oo	oo	Cypridopsis vidua (Müller)
oo	oo	oo	Cypridacea spp (indet)
oo	oo	oo	Cytheridella boldi Purper
oo	oo	oo	Darwinula stevensoni (Brady and Robertson)
oo	oo	oo	Dolerocypris inopinata Klie
oo	oo	oo	Hemicythere crucekeyensis Puri
oo	oo	oo	Hermitites hornbrookii (Puri)
oo	oo	oo	Limnocythere sp. aff. L. ceriotuberosa Delorme
oo	oo	oo	Loxoconcha (Loxoconcha) levis Brady
oo	oo	oo	Loxoconcha (Loxocorniculum) tricornuta (Krutak)
oo	oo	oo	Peratocytheridea setipunctata (Brady)
oo	oo	oo	Perissocytheridea cribrosa (Klie)
oo	oo	oo	Perissocytheridea subrugosa (Brady)
oo	oo	oo	Perissocytheridea sp. A
oo	oo	oo	Potamocypris sp.
oo	oo	oo	Riocypris sp.
oo	oo	oo	Strandesia pistrix Broodbakker
oo	oo	oo	Strandesia sp.
oo	oo	oo	Xestoleberis antillaea Bold
oo	oo	oo	Xestoleberis punctata Tressler

Table 3: Distribution of ostracoda in post reef sediments of the Cañada de Charco Salido section, and lithological column (Legend, see Text-fig. 4)



[5 cm]

69	69	69	Bairdia sp.
69	69	69	Cryptocandona sp. B
69	69	69	Cyclocypris sp. 1
69	69	69	Cyclocypris sp. 2
69	69	69	Cyprideis mexicana Sandberg
69	69	69	Cyprideis salebrosa Bold (smooth)
69	69	69	Cyprideis salebrosa Bold (punctate)
69	69	69	Cyprideis salebrosa Bold (nodose)
69	69	69	Cyprideis similis (Brady)
69	69	69	Cytherella sp.
69	69	69	Cytheridella boldi Purper
69	69	69	Darwinula stevensoni (Brady and Robertson)
69	69	69	Heterocypris? sp.
69	69	69	Jugoscythereis pannosa (Brady)
69	69	69	Limnocythere sp. aff. L. ceriotuberosa Delorme
69	69	69	Loxoconcha (Loxoconcha) levis Brady
69	69	69	Loxoconcha (Loxocorniculum) dorsotuberculata (Brady)
69	69	69	Loxoconcha (Loxocorniculum) fischeri (Brady)
69	69	69	Loxoconcha (Loxocorniculum) tricornuta (Krutak)
69	69	69	Orionina bradyi Bold
69	69	69	Peratocytheridea setipunctata (Brady)
69	69	69	Perissocytheridea cribrosa (Klie)
69	69	69	Perissocytheridea subrugosa (Brady)
69	69	69	Perissocytheridea sp. A
69	69	69	Potamocypris sp.
69	69	69	Xestoleberis sp.

Table 4: Distribution of ostracodes in post reef sediments of the Arroyo el Aculadero section, and lithological column (Legend, see Text-fig. 4)

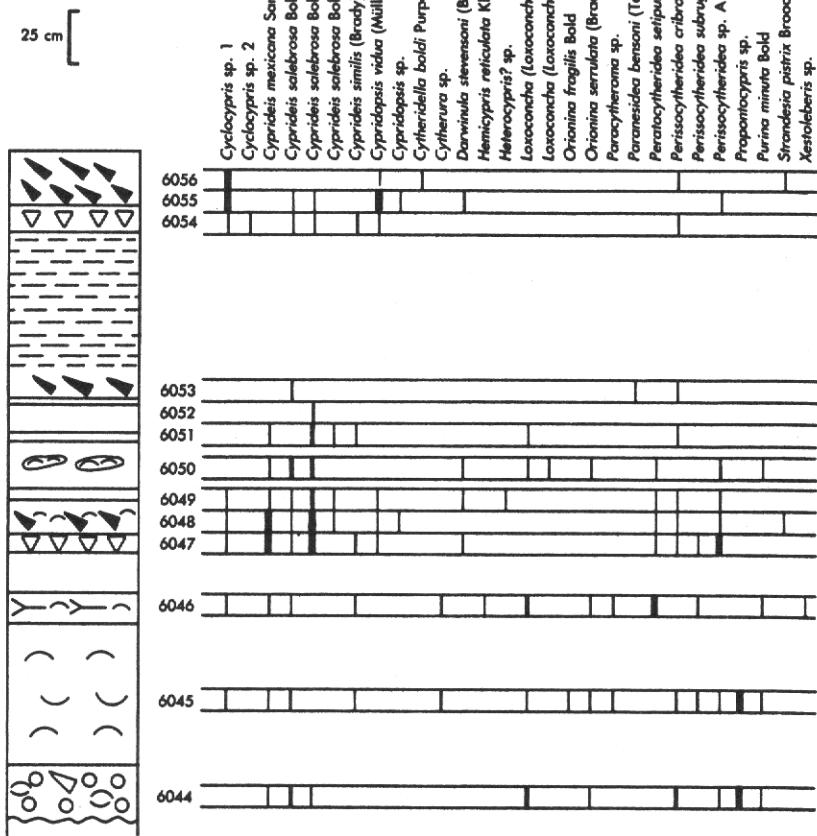


Table 5 Distribution of ostracodes in post reef sediments of "Big Bend" section with lithological column

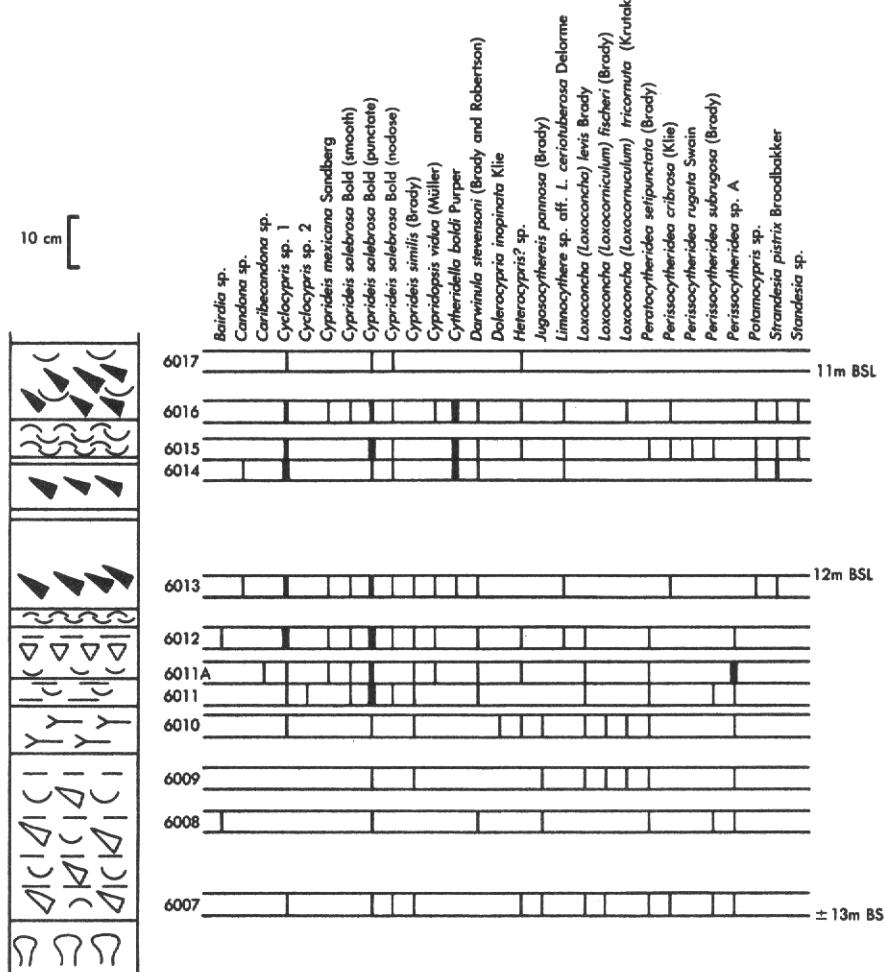
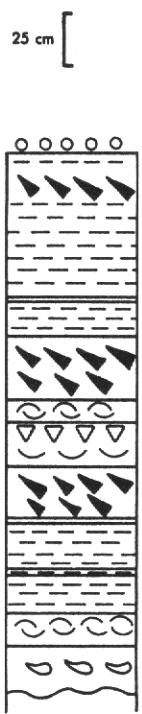


Table 6: Distribution of ostracoda and lithological column of post reef sediments in Cañada Honda, section I.  
(Legend, see Text-fig. 4)



	<i>Boridella</i> sp.
	<i>Cyclocypris</i> sp. 1
	<i>Cyclocypris</i> sp. 2
	<i>Cyprideis mexicana</i> Sandberg
	<i>Cyprideis solebroosi</i> Bold (smooth)
	<i>Cyprideis solebroosi</i> Bold (punctate)
	<i>Cyprideis solebroosi</i> Bold (nodose)
	<i>Cyprideis similis</i> (Brady)
	<i>Cypridopsis vidua</i> (Müller)
	<i>Cypridopsis</i> sp.
	<i>Cytheridella boldi</i> Purper
	<i>Darwinula stevensi</i> (Brady and Robertson)
	<i>Dosherocypris insinuata</i> Klie
	<i>Heterocypris?</i> sp.
6043	Limnocythere sp. off. <i>L. circulifera</i> Delorme
6042	<i>Loxocancha (Loxocancha) levigata</i> Brady
6041	<i>Paracerasidella bradyi</i> (Bold)
6040	<i>Peratocytheridea setipunctata</i> (Klie)
	<i>Perisocytheridea aristosa</i> (Klie)
	<i>Perisocytheridea subrugosa</i> (Brady)
	<i>Potamocypris</i> sp.
	<i>Strandesia pistrix</i> Broodbakker
	<i>Xestoleberis</i> sp.

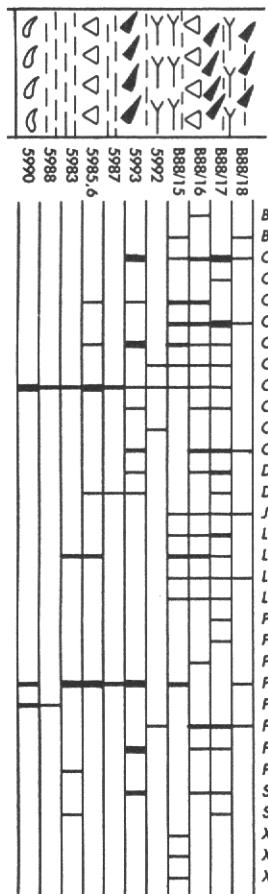
Table 7: Distribution of ostracodes and lithological column of post reef sediments in Cañada Honda, section II.  
(Legend, see Text-fig. 4)



	<i>Cycloocaris</i> sp. 1
	<i>Cyprideis mexicana</i> Sandberg
	<i>Cyprideis salterosa</i> Bold (smooth)
	<i>Cyprideis salterosa</i> Bold (punctate)
	<i>Cyprideis salterosa</i> Bold (nodose)
	<i>Cyprideis similis</i> (Brady)
	<i>Cypridopsis vidua</i> (Miller)
	<i>Cytheridella boldi</i> Purper
	<i>Darwinula stebbingi</i> (Brady and Robertson)
	<i>Heterocypris?</i> sp.
	<i>Limnocythere</i> sp. aff. <i>L. carinifera</i> Dellemer
	<i>Limnocythere floridensis</i> Keyser
	<i>Limnocythere</i> sp.
6057	<i>Lexacantha</i> ( <i>Lexacantha</i> ) <i>levigata</i> Brady
6058	<i>Peranocystheridea setipunctata</i> (Brady)
6059	<i>Perissocytheridea ciliata</i> (Klie)
6060	<i>Perissocytheridea subrugosa</i> (Brady)
6061	<i>Potamocypris</i> sp. A
6062	<i>Strandesia patrix</i> Broodbaumer
6063	
6064	
6065	
6066	
6067	
6068	

$2820 \pm 40$  ybp.

Table 8: Distribution of ostracodes and lithological column of post reef sediments in Cañada del Benito.  
(Legend, see Text-fig. 4)



	5990	5988	5983	5987	5993	5992	888/15	888/16	888/17	888/18
<i>Bairdia</i> sp.										
<i>Bairdoppilata cushmani</i> (Tressler)										
<i>Cyclocypris</i> sp. 1										
<i>Cyclocypris</i> sp. 2										
<i>Cypridacea</i> spp. (indet)										
<i>Cyprideis salebrosa</i> Bold (smooth)										
<i>Cyprideis salebrosa</i> Bold (punctate)										
<i>Cyprideis salebrosa</i> Bold (nodose)										
<i>Cyprideis similis</i> (Brady)										
<i>Cypridopsis vidua</i> (Müller)										
<i>Cytherella</i> sp.										
<i>Cytheridella boldi</i> Purper										
<i>Darwinula stevensoni</i> (Brady and Robertson)										
<i>Dolerocypris inopinata</i> Klie										
<i>Jugosocythereis pannosa</i> (Brady)										
<i>Limnocythere</i> sp. aff. <i>L. ceriatuberosa</i> Delorme										
<i>Loxoconcha</i> ( <i>Loxoconcha</i> ) <i>levius</i> Brady										
<i>Loxoconcha</i> ( <i>Loxocorniculum</i> ) <i>fischeri</i> (Brady)										
<i>Loxoconcha</i> ( <i>Loxocorniculum</i> ) <i>tricornuta</i> (Krutak)										
<i>Paracytheridea</i> sp.										
<i>Paranesiidea bradyi</i> Bold										
<i>Peratocytheridea setipunctata</i> (Brady)										
<i>Perissocytheridea cribrosa</i> (Klie)										
<i>Perissocytheridea subrugosa</i> (Brady)										
<i>Perissocytheridea</i> sp. A										
<i>Potamocypris</i> sp.										
<i>Propontocypris</i> sp.										
<i>Strandesia pistrix</i> Broodbakker										
<i>Strandesia venezolana</i> Broodbakker?										
<i>Xestoleberis antillae</i> Bold										
<i>Xestoleberis punctata</i> Tressler										
<i>Xestoleberis</i> sp.										

Table 10: Distribution of ostracodes and lithological column of reef sediments in the Arroyo el Aculadero section.  
(Legend, see Text-fig. 4)

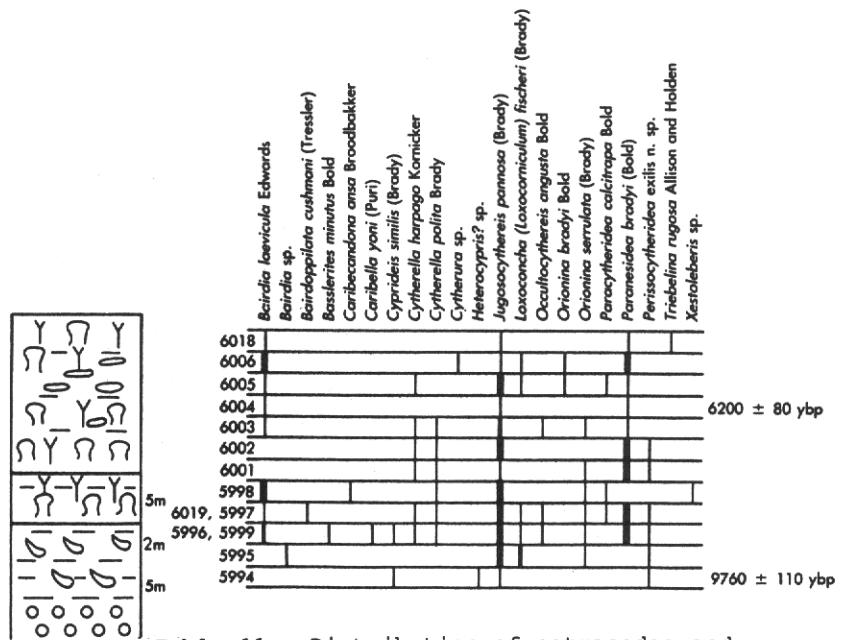


Table 11: Distribution of ostracodes and lithological column of reef and pre-reef sediments in the Cañada Honda section. (Legend, see Text-fig. 4)

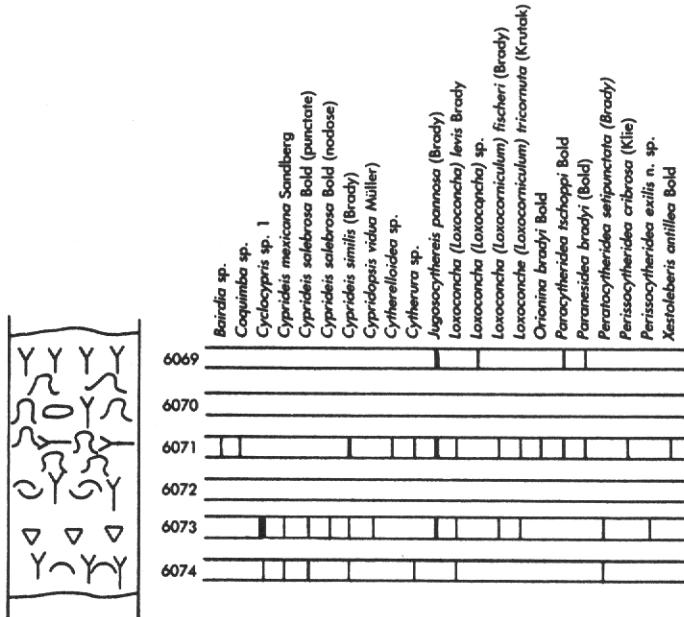


Table 12: Distribution of ostracodes and lithological column in reef sediments of the Cañada del Benito section (Legend, see Text-fig. 4)

Plate 1

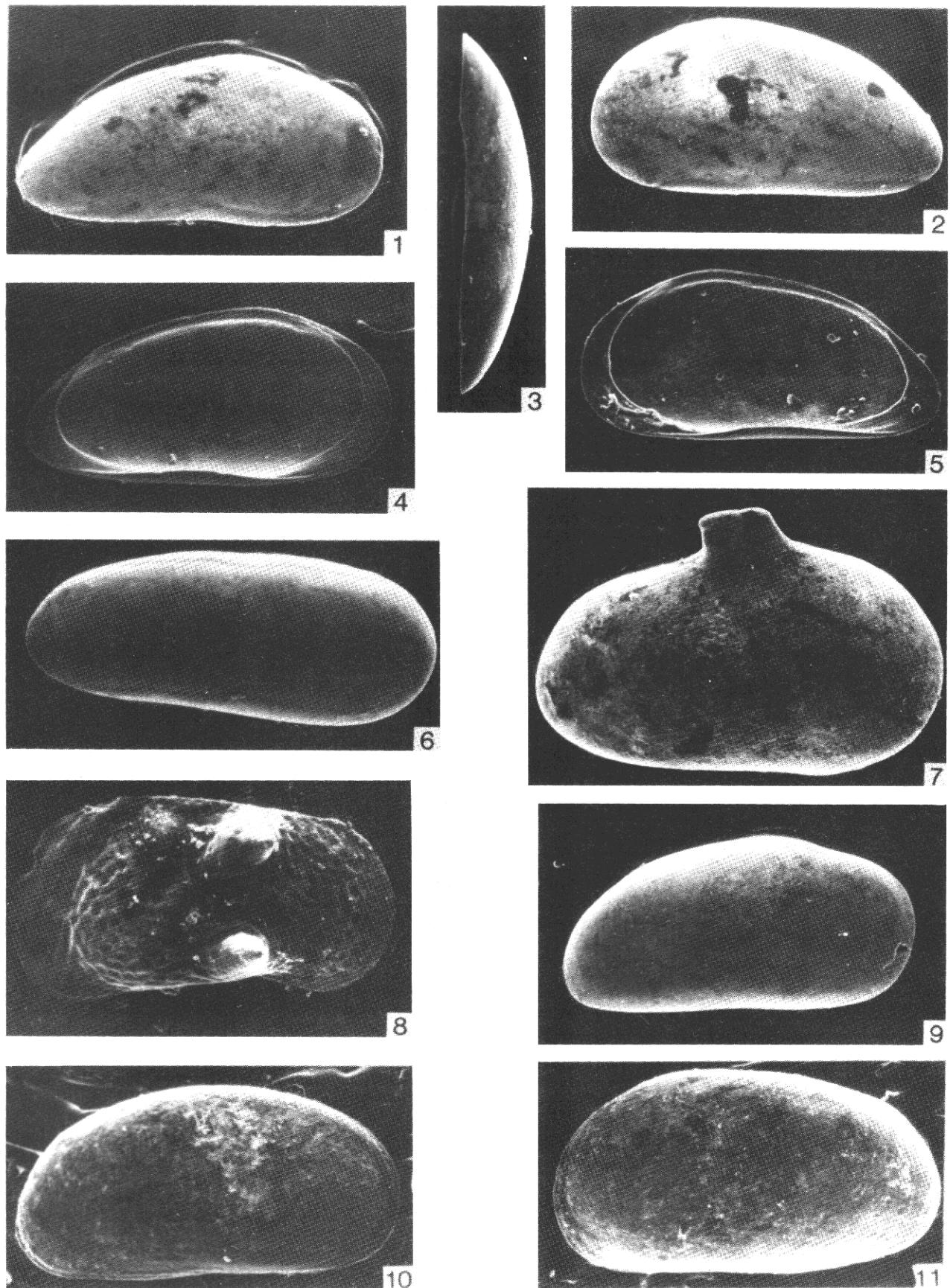


Plate 2

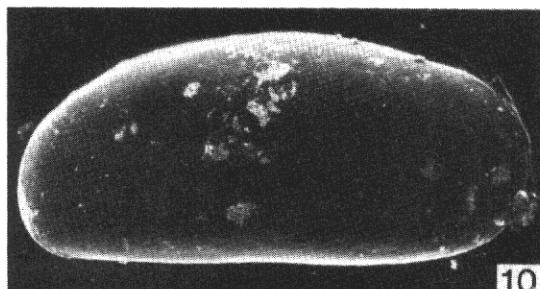
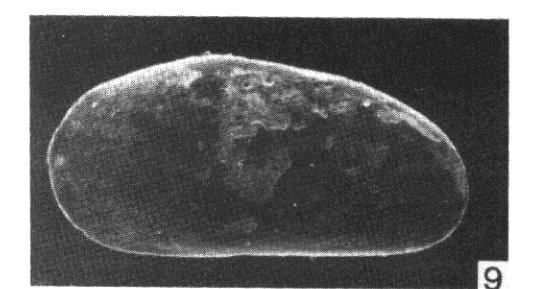
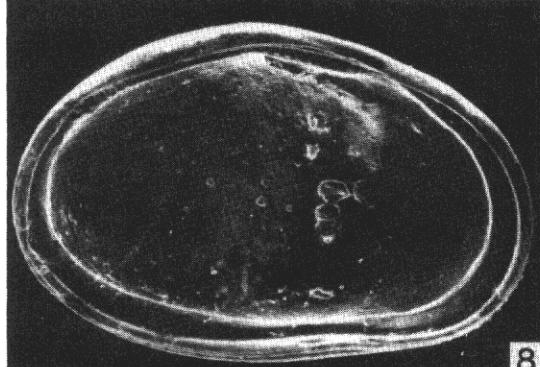
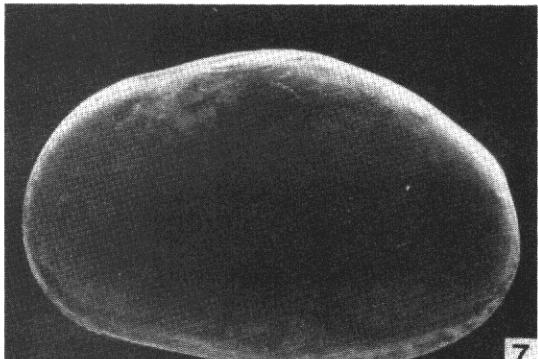
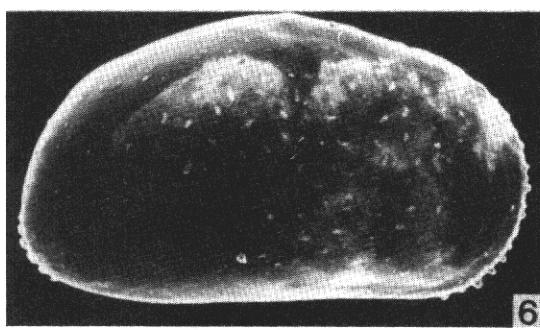
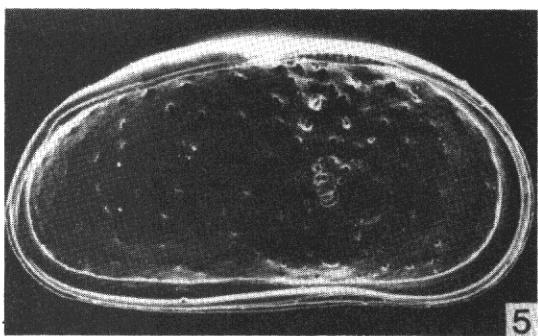
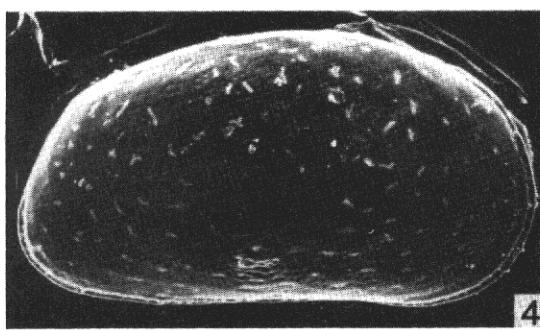
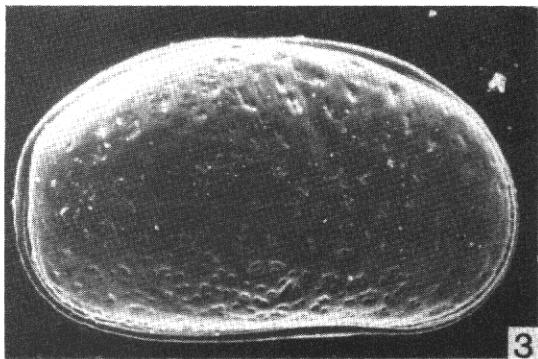
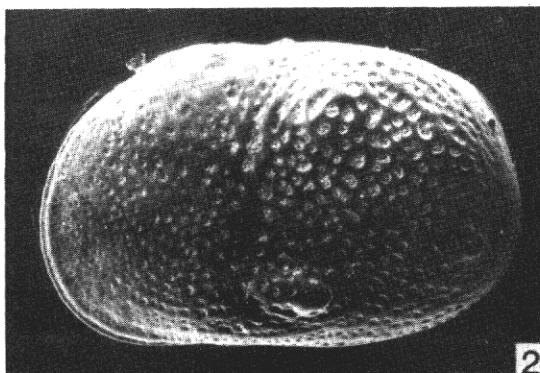
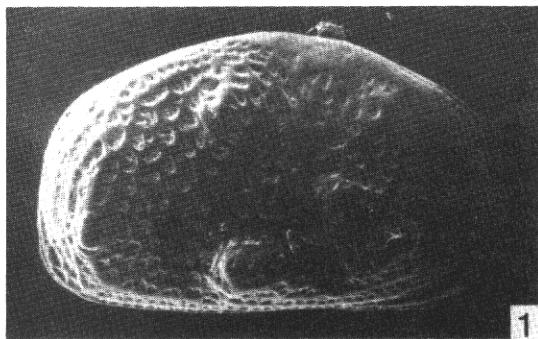


Plate 3

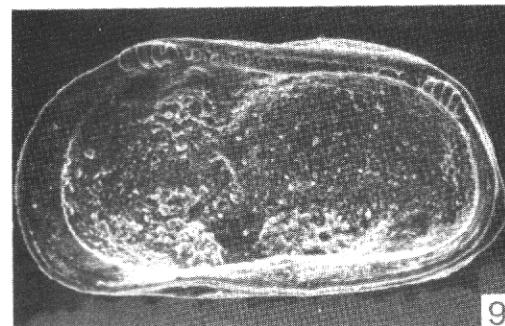
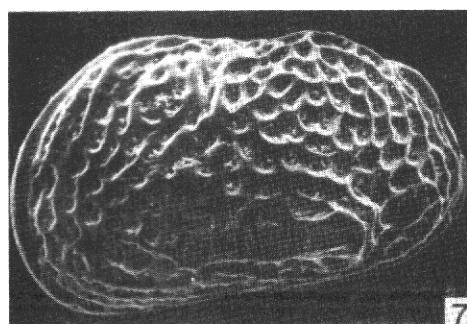
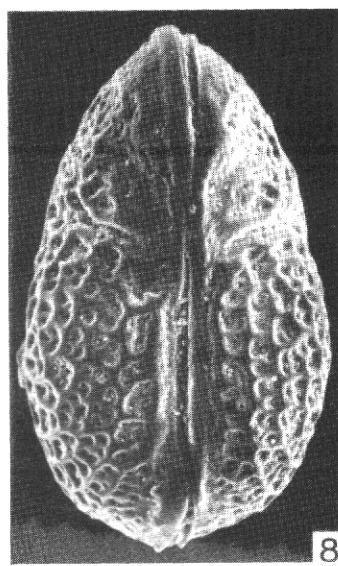
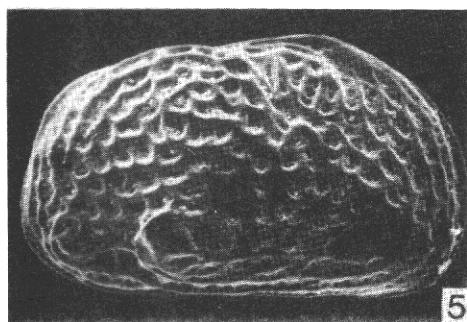
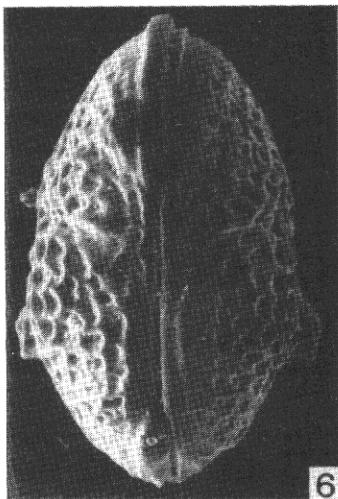
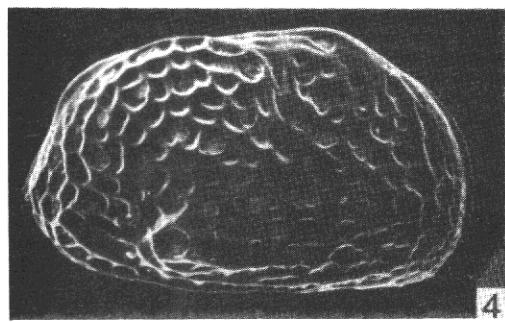
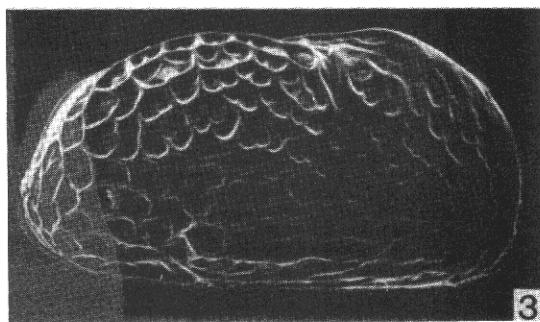
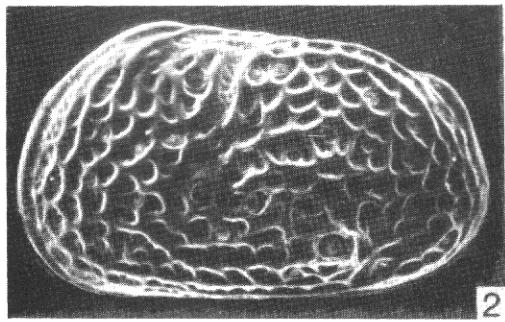
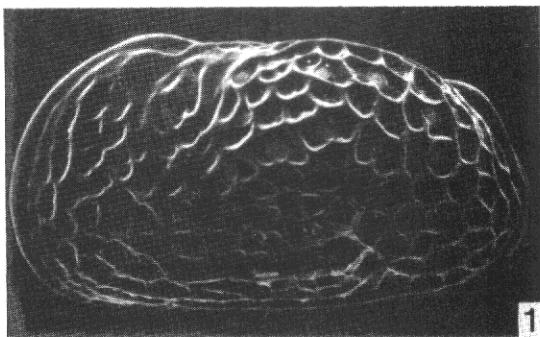


Plate 4

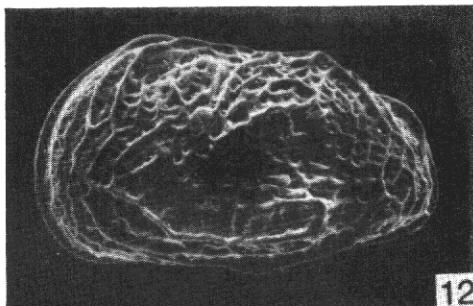
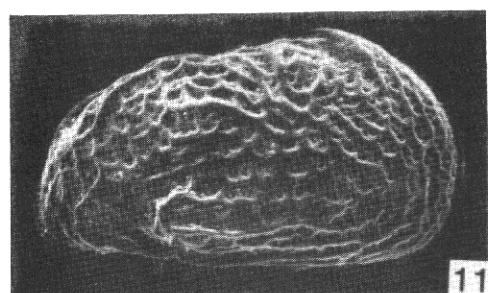
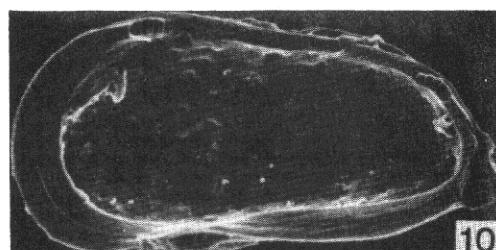
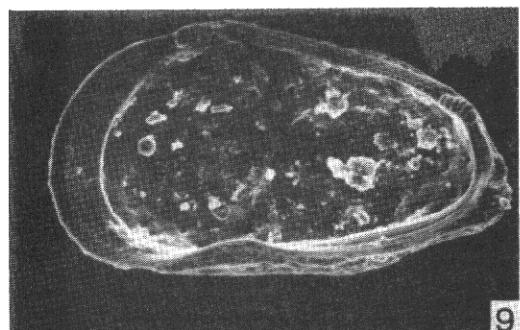
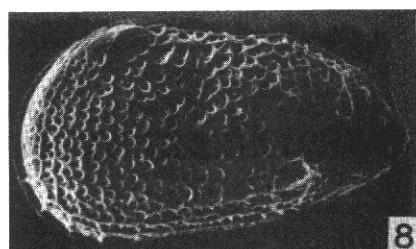
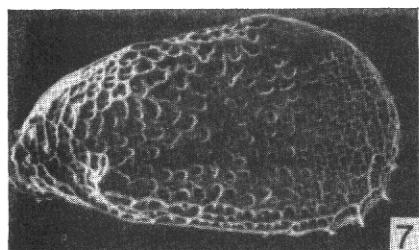
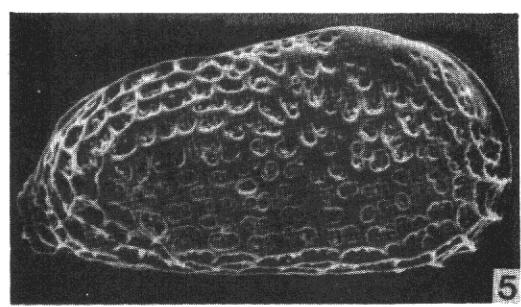
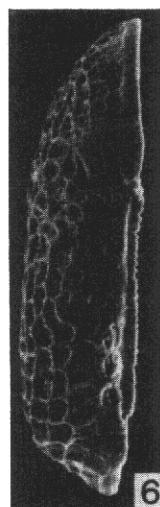
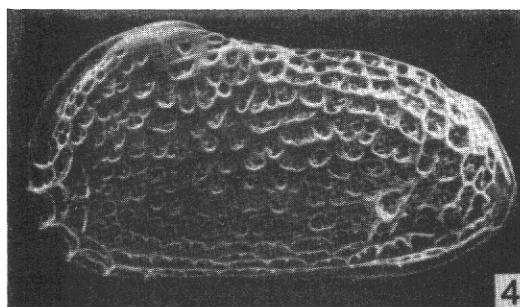
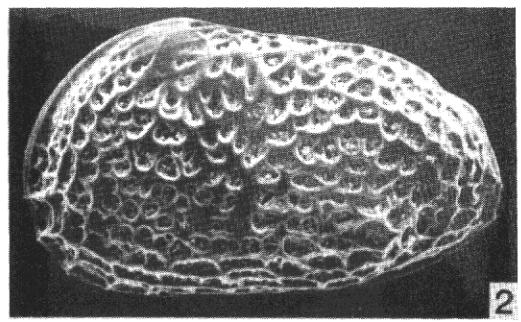
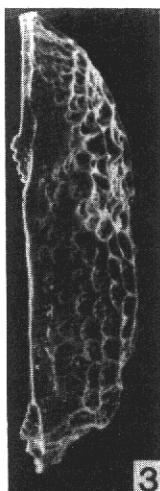
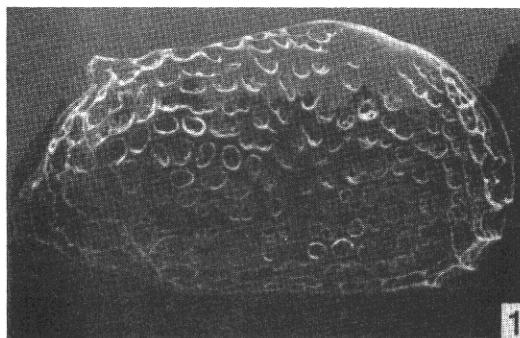


PLATE 1

- Figs. 1-5: Propontocypris sp.; Bold, 88/7, marly lens in Holocene reef, illa Jaragua section; Magn. 150X. 1. outside of right valve, HVH no. 10927; 2. outside of left valve, HVH no. 10928; 3. dorsal view of right valve, HVH no. 10927; 4. inside of left valve, HVH no. 10928; 5. inside of right valve, HVH no. 10927.
- Fig. 6: Darwinula stevensoni (Brady and Robertson); HVH no. 10930, Glenn 6030, Cañada del Benito. Outside of left valve; Magn. 150X.
- Fig. 7: Strandesia pistrix Broodbakker; HVH no. 10931, Maddox 6014, Cañada Honda, upper hydrobid gastropod layer; outside of right valve; Magn. 150X.
- Fig. 8: Limnocythere sp. aff. L. ceriotuberosa Delorme; HVH no. 10932, Glenn 6074, layer of mixed clams and A. cervicornis; outside of left valve; Magn. 200X.
- Fig. 9: Dolerocypris inopinata Klie; HVH no. 10933, Core 2: 20-25 cm. Outside of left valve; Magn. 200X.
- Fig. 10-11: Cyprideis mexicana Sandberg; HVH no. 10934, Glenn 6073, Cañada del Benito, Tagelus horizon. 10. outside of right valve; 11. outside of left valve; Magn. 100X.

PLATE 2

- Figs. 1-2: Cyprideis salebrosa Bold; HVH no. 10935, Maddox 6025, Arroyo El Aculadero. Magn. 100X. 1. outside of female right valve; 2. outside of female left valve.
- Figs. 3-5: Cyprideis edentata Klie; HVH no. 10936, Core 2: 20-25 cm; Magn. 100X. 3. right valve view of female carapace; 4. outside of male right valve; 5. inside of male right valve.
- Figs. 6-8: Peratocytheridea setipunctata (Brady); HVH no. 10937, Maddox 6064, Cañada del Benito. Magn. 100X. 6. outside of female right valve; 7. outside of male left valve; 8. inside of female left valve.
- Figs. 9-10: Dolerocypris inopinata Klie; HVH no. 10933, Core 2: 20-25 cm; Magn. 150X. 9. outside of juvenile left valve; 10. outside of male (?) right valve.

PLATE 3

Figs. 1-4: Perissocytheridea cribrosa (Klie); Core 2: 20-25 cm; Magn. 200 X. 1. outside of male left valve, HVH no. 10939; 2. outside of male right valve, HVH no. 10939; 3. outside of female left valve, HVH no. 10938; 4. outside of female right valve, HVH no. 10938.

Figs. 5-9: Periosscytheridea sp. A; Maddox 6023, Arroyo El Aculadero; Magn. 200X. 5. outside of female right valve, HVH no. 10940; 6. dorsal view of female carapace, HVH no. 10841; 7. outside of male left valve, HVH no. 10942; 8. dorsal view of male carapace, HVH no. 10943; 9. inside of male right valve, HVH no. 10944.

PLATE 4

FIGS. 1-10: Perissocytheridea exilis n. sp.; Magn. 200X.

1. outside of female right valve, holotype, HVH no. 10946, Sen Gupta 88/66, Arroyo El Aculadero, silty-marly pocket in Holocene reef; 2. outside of female left valve HVH no. 10947, same sample; 3. dorsal view of female right valve, HVH no. 10955, Glenn 5999, Cañada Honda, top of red oysterbed; 4. outside of male left valve, HVH no. 10948, Sen Gupta 88/66; 5. outside of male right valve, HVH no. 10949, same sample; 6. dorsal view of male left valve, HVH no. 10950, same sample; 7. outside of juvenile right valve, HVH no. 10951, same sample; 8. outside of juvenile left valve, HVH no. 10951; 9. inside of female right valve, HVH no. 10954, Glenn 5999; 10. inside of male right valve, HVH no. 10952, Sen Gupta 88/66.

Figs. 11-12: Perissocytheridea sp. A, HVH no. 10945, Glenn 6023, Arroyo El Aculadero. Magn. 200X. 11. outside of juvenile right valve; 12. outside of juvenile left valve.